

hVNO-R1 nucleotide sequence

ATTCCAGATCATAGAGATGTTGAAATTGGTTATTATTGAGAACATGGCAG  
AAATTATGCTATTCTCATTAGATCTCTTGCTTTTCTCCACAGATATCCTT  
TGCTTTAATTTTCCTTCTAAGATGATCAAACCTTCCTGGTTTTATTACCAT  
ACAAATCTTCTTTTATCCACAAGCCAGCTTTGGAATTTTCAGCAAACACCA  
TCCTTCTTCTTTTCCACATCTTCACCTTTGTTTTCAGTCACAGGTCTAAG  
TCCATTGACATGATAATTAGTCACCTGTCTCTCATCCACATACTGCTGCT  
CTTCACTCAGGCAATATTGGTGTCTTAGACTTCTTTGGTTCACAGAATA  
CTCAGGATGATCTTAGGTATAAGGTCATTGTCTTTTTAAACAAGGTGATG  
AGGGGCCTCTCCATCTGCACCCCCTGCCTCCTGAGTGTGCTCCAGGCCAT  
CATCAGCCCCAGCATCTTCTCCTTGGCAAAGCTCAAACATCCTTCTGCAA  
GTCACATCTTAGGATTCTTCCTTTTCTCATGGGTCTCAACATGTTTCATT  
GGTGTAATCTTCTGCTGTACACTGCGGCTACCCCCAGTGAAACGGGGCCA  
GTCTTCTGTTTGTACATACAGCACTGTTCTTTTTTGCCCATGAGCTACACC  
CACAGGAGACTGTTTTTCACACTAATGACTTTGAGGGATGTCACCTTTAT  
AGGGTTCATGGTCCTCTCAAGAGGCTACATGGTGATTATTTTATACAGAC  
AATAAGAGGCTATCTCAGTGCCTTCACGCAGCCAGCCTGTCCCCGAGTCT  
CACCAGTGAAAAGAGCCTCCCAGGCTATCTTACTGCTGGTGAGTTTTGTC  
TTCACATACTGGGTGGACTTTACGTTCTCATTTTTCAGGAGGTGTGACATG  
GATAAATGATTCTCTGCTAGTGTGGCTCCAGGTTATTGTGGCCAATAGCT  
ATGCCGCAATTAGTCCTTTGATGCTAATTTATGCTGATAACCAAATATTC  
AAGACTCTGCAAATGTTATGGTTTAAATATTTGTCTCCTCCAAAGCTCAT  
GTTGAAATTTAATCGCCAATGTGGCAGTACTAAGAAGTGATGATGAGAGG  
TTAATCCATTCATG

Figure 1

hVNO-R1 amino acid sequence (long form)  
(translated using first in-frame ATG)

MLKLVIIENMAEIMLFSLDLLLLFSTDILCFNFPSKMIKLPGFITIQIFFY  
PQASFGISANTILLLFHIFTFVFSHRKSIDMIISHLSLIHILLLLFTQAI  
LVSLDFFGQNTQDDLRYKVIVFLNKVMRGLSICTPCLLSVLQAIISPSI  
FSLAKLKHPSASHILGFFLFSWVLNMFIVFCCTLRLPPVKRGQSSVCH  
TALFLFAHELHPQETVFHTNDFEGCHLYRVHGPLKRLHGDYFIQTIRGYL  
SAFTQPACPRVSPVKRASQAIIILLVSFVFTYWVDFTFSFSGGVTWINDSL  
LVWLQVIVANSYAAISPLMLIYADNQIFKTLQMLWFKYLSPPKLMLKFNR  
QCGSTKK

Figure 2

hVNO-R1 amino acid sequence (short form)  
(translated using second in-frame ATG)

MAEIMLFSLDLLLLFSTDILCFNFPSKMIKLPGFITIQIFFYPQASFGISA  
NTILLLFHIFTFVFSHRKSIDMIISHLSLIHILLLLFTQAILVSLDFFGS  
QNTQDDLRYKVIVFLNKVMRGLSICTPCLLSVLQAIISPSIFSLAKLKH  
PSASHILGFFLFSWVLNMFIVFCCTLRLPPVKRGQSSVCHTALFLFAHE  
LHPQETVFHTNDFEGCHLYRVHGPLKRLHGDYFIQTIRGYLSAFTQPAC  
PRVSPVKRASQAIIILLVSFVFTYWVDFTFSFSGGVTWINDSLLVWLQV  
IVANSYAAISPLMLIYADNQIFKTLQMLWFKYLSPPKLMLKFNRQCGSTKK

Figure 3

hVNO-R1 amino acid sequence (long form) with seven theoretical transmembrane domains indicated:

```

                                TM1
1  MLKLVI IENMAEIMLFSLDLLLFSTDILCFNFPSKMIKLPGFITIQIFFY
                                TM2
51 PQASEFGISANTILLLEHIFTFVFSHRSKSIDMIISHLSLIHILLLLFTQAI
                                TM3
101 LVSLDFFGSQNTQDDLRYKVIVFLNKVMRGLSICTPCLLSVLQAIISPSI
                                TM4
151 FSLAKLKHPSASHILGFFLFSWVLNMFIVFCCTLRPPVVRGQSSVCH
                                TM5
201 TALFLFAHELHPQETVFHTNDFEGCHLYRVHGPLKRLHGDYFIQTIRGYL
                                TM6
251 SAFTQPACPRVSPVKRASQAILLLVSFVFTYWVDFTFSFSGGVTWINDSL
                                TM7
301 LVWLQVIVANSYAAISPLMLIYADNQIFKTLQMLWFKYLSPPKLMLKFNR
351 QCGSTKK

```

Figure 4

hVNO-R1 nucleotide sequence (clone ppl66)  
 (alternative sequence with a natural null mutation,  
 useful for diagnostic application)

```

1    ATGTTGAAAT TGGTTATTAT TGAGAACATG GCAGAAATTA TGCTATTCTC
51   ATTAGATCTC TTGCTTTTCT CCACAGATAT CCTTTGCTTT AATTTTCCTT
101  CTAAGATGAT CAAACTTCCT GGTTTTATTA CCATATAAAT CTTCTTTTAT
151  CCACAAGCCA GCTTTGGAAT TTCAGCAAAC ACCATCCTTC TTCTTTTCCA
201  CATCTTCACC TTTGTTTTCA GTCACAGGTC TAAGTCCATT GACATGATAA
251  TTAGTCACCT GTCTCTCATC CACATACTGC TGCTCTTCAC TCAGGCAATA
301  TTGGTGTCTT TAGACTTCTT TGGTTCACAG AATACTCAGG ATGATCTTAG
351  GTATAAGGTC ATTGTCTTTT TAAACAAGGT GATGAGGGGC CTCTCCATCT
401  GCACCCCTG  CCTCCTGAGT GTGCTCCAGG CCATCATCAG CCCCAGCATC
451  TTCTCCTTGG CAAAGCTCAA ACATCCTTCT GCAAGTCACA TCTTAGGATT
501  CTTCTTTTTC TCATGGGTCC TCAACATGTT CATTGGTGTA ATCTTCTGCT
551  GTACACTGCG GCTACCCCCA GTGAAACGGG GCCAGTCTTC TGTTTGTCAT
601  ACAGCACTGT TCCTTTTTTG CCATGAGCTA CACCCACAGG AGACTGTTTT
651  TCACACTAAT GACTTTGAGG GATGTCACCT TTATAGGGTT CATGGTCCTC
701  TCAAGAGGCT ACATGGTGAT TATTTTATAC AGACAATAAG AGGCTATCTC
751  AGTGCCTTCA CACAGCCAGC CTGTCCCCGA GTCTCACCAG TGAAAAGAGC
801  CTCCCAGGCT ATCTTACTGC TGGTGAGTTT TGTCTTCACA TACTGGGTGG
851  ACTTTACGTT CTCATTTTCA GGAGGTGTGA CATGGATAAA TGATTCTCTG
901  CTAGTGTGGC TCCAGGTTAT TGTGGCCAAT AGCTATGCCG CAATTAGTCC
951  TTTGATGCTA ATTTATGCTG ATAACCAAAT ATTCAAGACT CTGCAAATGT
1001 TATGGTTTAA ATATTTGTCT CCTCCAAAGC TCATGTTGAA ATTTAATCGC
1051 CAATGTGGCA GTACTAAGAA GTGATGA

```

Figure 5